

Response Under 37 C.F.R. 1.116

Applicant: Mark Shu et al.

Serial No.: 10/792,186

Filed: March 3, 2004

Docket No.: M190.148.101 / P0011480.00

Title: SUTURE LOCKING ASSEMBLY AND METHOD OF USE

IN THE CLAIMS

Listing of Claims:

1.(Previously Presented) A suture locking assembly for use with a heart valve repair device, the suture locking assembly comprising:

a rim defining a first flange and a second flange spaced from the first flange, the rim configured to extend at least partially around a periphery of the heart valve repair device; and

a suture band maintained between the first flange and the second flange; wherein relative to a circumferential interface between the rim and the suture band, a radial spacing between the rim and the suture band decreases from a first radial spacing to a second radial spacing, the second radial spacing being circumferential adjacent the first radial spacing;

wherein the suture locking assembly is configured to securely maintain a suture segment that is circumferentially pulled relative to at least one of the flanges from a first position at the first radial spacing to a second position at the second radial spacing, the second position being at least partially defined near an outer periphery of the rim.

2.(Previously Presented) The suture locking assembly of claim 1, wherein the suture locking assembly is configured such that the suture segment is at least partially positioned between the suture band and the rim in the second position.

3.(Previously Presented) The suture locking assembly of claim 1, wherein the suture locking assembly is configured such that the suture segment is at least partially positioned between the suture band and the rim in both the first and second positions.

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4.(Original) The suture locking assembly of claim 1, wherein the rim defines a plurality of recesses, each of the plurality of recesses defining the first position for one of the at least one sutures.

5.(Previously Presented) The suture locking assembly of claim 4, wherein the rim defines a plurality of stop sites, each of the plurality of stop sites being spaced from each of the plurality of recesses and impeding suture movement from the second position to the first position.

6.(Previously Presented) The suture locking assembly of claim 5, wherein each of the plurality of stop sites defines the second position for at least one suture segment.

7.(Original) The suture locking assembly of claim 1, wherein the rim defines a plurality of segments, each segment defining a recess and at least one stop site.

8.(Previously Presented) The suture locking assembly of claim 7, wherein the suture locking assembly is configured to receive a suture in each of the plurality of segments.

9.(Previously Presented) The suture locking assembly of claim 7, wherein the suture locking assembly is configured to receive two sutures in each of the plurality of segments.

10.(Original) The suture locking assembly of claim 1, wherein the rim and the suture band are each a closed ring.

11.(Original) The suture locking assembly of claim 1, wherein the rim is integrally formed with the heart valve repair device.

12.(Original) The suture locking assembly of claim 11, wherein the rim is homogenously formed with a stent of the heart valve repair device.

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13.(Original) The suture locking assembly of claim 1, wherein the rim is formed separately from the heart valve repair device.

14.(Original) The suture locking assembly of claim 1, wherein the rim is formed of plastic.

15.(Original) The suture locking assembly of claim 1, wherein the suture band and rim are configured to secure a heart valve repair device to a valvular rim.

16.(Original) The suture locking assembly of claim 15, wherein the suture locking assembly is configured to be positioned adjacent a sewing ring of the heart valve repair device.

17.(Original) The suture locking assembly of claim 15, wherein the heart valve repair device is a tissue heart valve mechanism.

18.(Original) The suture locking assembly of claim 17, wherein the suture band is configured to fit snugly around the stent of the tissue heart valve mechanism.

19.(Original) The suture locking assembly of claim 15, wherein the heart valve repair device is a mechanical heart valve mechanism.

20.(Original) The suture locking assembly of claim 1, further comprising:
a plastic cover attached to the suture locking assembly opposite the rim, wherein the suture band is maintained between the rim and the plastic cover.

21.(Original) The suture locking assembly of claim 1, wherein the suture locking assembly of claim 1, wherein the suture band is formed of a metallic material.

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22.(Original) The suture locking assembly of claim 1, wherein the rim is at least partially covered by a fabric cover to couple the rim with the heart valve repair device.

23.(Original) The suture locking assembly of claim 1, wherein the rim includes a band coupling member to facilitate maintaining the suture band between the first and second flanges.

24.(Original) The suture locking assembly of claim 1, wherein the heart valve repair device is an annuloplasty band.

25.(Original) The suture locking assembly of claim 1, wherein the heart valve repair device is an annuloplasty ring.

26.(Original) The suture locking assembly of claim 1, wherein the rim and the suture band are each arcuately shaped.

27.(Original) The suture locking assembly of claim 26, wherein the rim defines a first end and a second end and includes a first end cap on the first end and a second end cap on the second end to facilitate maintaining the suture band between the first and second flanges.

28.(Original) The suture locking assembly of claim 1, wherein the suture band defines a cutout configured to securely maintain the suture in the second position.

29.(Original) The suture locking assembly of claim 28, wherein the cutout is a U-shaped cutout and the suture is maintained between the cutout and a remainder of the suture band when in the second position.

30.(Previously Presented) The suture locking assembly of claim 1, wherein the suture band defines an engagement section including a connection body flanked by an outflow cut and an

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inflow cut, the engagement section being configured to securely maintain the suture segment in the second position over the connecting body.

31.(Original) The suture locking assembly of claim 30, wherein the suture band defines at least one lateral stop rib configured to impede suture movement from the second position to the first position.

32. – 50.(Cancelled)

51.(Withdrawn) A suture holder for use in suturing a heart valve repair device with a suture locking assembly to a heart valve annulus, the suture holder comprising:

a shaft defining a first end and a second end, the first end configured to interact with the suture locking assembly; and
a translating member slidably coupled to the shaft between the first and second ends and being configured to selectively receive and maintain at least one suture.

52.(Withdrawn) The suture holder of claim 51, further including:

a stop positioned along the shaft and configured to maintain the translating member in a first position spaced from the first end of the shaft.

53.(Withdrawn) The suture holder of claim 51, wherein the translating member is rotatable about the shaft.

54.(Previously Presented) The suture locking assembly of claim 1, wherein a perimeter shape of the first flange differs from a perimeter shape of the second flange.

55.(Previously Presented) The suture locking assembly of claim 1, wherein the first flange forms a first pattern of radial indentations and the second flange forms a second pattern of radial

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indentations, the first pattern of radial indentations differing from the second pattern of radial indentations.

56.(Previously Presented) The suture locking assembly of claim 1, wherein the first flange forms a plurality of recesses and a plurality of grooves, and further wherein a radial depth of the recesses is greater than a radial depth of the grooves, and further wherein at least one of grooves is interposed between two of the recesses.

57.(Previously Presented) The suture locking assembly of claim 1, wherein the rim forms a plurality of recesses, wherein each of the recesses are non-symmetrical.

58.(Previously Presented) The suture locking assembly of claim 57, wherein the each of the recesses is defined by a leading surface and a trailing surface each extending from a lateral edge, and further wherein an angle of extension of the leading surface from the lateral edge differs from an angle of extension of the trailing surface from the lateral edge.